DESIGNING TOYS TO SUPPORT CHILDREN'S DEVELOPMENT

By

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ABSTRACT

This article reports a study that aimed to contribute to the theory of good toy design in terms of the value of using toys for children development. Moreover, the study attempts to evaluate ways in which children play and study the toys they commonly use with respect to how it influence their adulthood. The authors firstly looked into the literature of toy design and children development and then they carried out an interview with an elder designer. The study underlines the importance of good toy design to support children's maturity and self-realisation. It, also, show the complex the role of a toy designer is in terms of design a valuable toy. Furthermore, the study demonstrates a subject to the demands of users as well as regulations. In addition to the interview a questionnaire was given to 28 partaker's ages 18-25 years; the subject was a retrospective view of toys and their influences on the partaker's existing lifestyle. The main conclusions draw from the study was that using toys in our childhood influence the development of key skills, but, also, shape our negative or positive view on our childhood. The conclusions demonstrate the importance that toy designers both draw upon academic research and carry out their own in order to create powerful toys of quality.

Keywords: Toy Design, Children, Development, Manufacturing, Play, Computer Technology.

INTRODUCTION

The designers role creating products for children and how this can influence a child's development. "Throughout history, play has been a cultural form (Clay, 2005) valued as an energy release and a way of teaching skills, and for its role in physical, cognitive, emotional, and social development" (Kline, Dyer-Withford, and Peuter, 2006, p. 243).

The article is focused on pedagogical values of proper toy design for young children in of children development. Designing for children in today's large and competitive market is a very complex and crucial area. Toys are critical to child development as they allow the child to develop key skills, whether they are mental, physical, or social. Child development and children's toys has been the subject of many studies. The ways in which we play and the toys we have as children can influence our lifestyles as adults and the designer can play an important role influencing this. It is in recognition of this key role that this study will be carried out in order to gain a greater understanding of the ways in which designers have the potential to influence.

The increased consumer power that children now possess has encouraged many toy designers to target their products directly at the younger market. However, this is not always the case and not always proved the best approach. For example designers were asked to re-image the Barbie toy line; they took inspiration from a quote once said by Walt Disney: "You are dead if you only aim for kids. Adults are grown up kids." (Fishel, 2001, p.17). It was drawing experience from an icon in child media that became the inspiration to listen to the parents as well as the child (Scaro, 2008).

To hypothesise, many toys are made unnecessarily difficult; the more technology that becomes available can be added to toys without the consideration of the effect this technology will have on the satisfaction with the toy. It is believed that the toy is designed solely around the needs of the child; this is through colour, form, and function. This study will aim to find if this is true.

1. The Theory behind Designing for Children

The play and soft range of communal children's furniture is

subject of Kahn's (2007) article for ID magazine. It is the imaginative forms of the products that Kahn feels expands the child's mind. The use of Ecosoft, a material developed for the product range reflects the designer's recognition of the stresses it will undertake in the child's communal environment, thus providing a suitable and durable material that will retain the quality of the product design (Roqueta, 2002). Kahn states, the designers tested their prototypes on children (in Reggio Emilia, Italy) and on adults who work with children. According to Giaretta, the main European distributor of play and soft, the products were met with some resistance, as they were so different to the communal furniture already out there. Listening to children and immersing themselves in specialist research paid off. The prototypes were tested with children of ages up to 11 and proved to be a success with them. Kahn believes that design for children, concerned with the interior space should last throughout the ages. The environment should allow the child to manipulate it, so that, it does not outgrow them too quickly (Kahn, 2007).

It is important for designers to use specific research concerning children and play to ensure children's products progress a child's development and provide more enjoyable play. Buxton (2007) writes about this collaboration in an article for design week entitled 'Kid Appeal'. Buxton quotes Giarreta, an organiser of the international conference for children (the subject of Buxton's article). He believes that children's environments need to be more challenging and children should be able to create a variety of uses out of their products. Buxton also refers to Zini, co-editor of a book in the field who advocates designers using specialist research to create more exciting, social, and challenging toys for children. For Zini, designers often create products that are too simple and leave little room for imagination. Multi use products, for instance, would enhance creative play. Zini also picks up on the primary palette commonly used for children's environments and products, an example, for him, where designers assume simplicity is best for children without any research that backs this up. Buxton uses the example of the play and soft range that have used prestigious research in the field. Their products promote fun exploration in play whilst being educational (Buxton, 2007).

When a child plays they are 'perfecting the bodily skills of manipulation, muscle co-ordination, balance, strength, and endurance' (Newson and Newson, 1979, p.16). It would seem that the designer can play a critical role by creating toys that encourage the development of these key skills.

The introduction of computers into the child market came with conflicting views. At first computers were coveted by parents. They had the ability to aid the child in learning without the realisation that they were being taught (Seiter, 2004). An example of a computer game that has the ability to do so is The Sims, for ages 7+. Popular amongst children of all ages, it incorporates creative and constructive themes evident amongst many successful toys, the most obvious of which is Lego.

The game created by Wright allows the player to become both architect and designer by creating a house from scratch and then moving characters created by the user inside. The success of the house design and layout is revealed by the responses and emotions of these user created occupants (Wiles, 2008). Wiles writes about his view on design in an article for ICON magazine. By viewing the pleasure people take from design Wright notes how people enjoy the flexibility that design can offer in their environment. An example given is multipurpose furniture, something evident in the play and soft range of children's furniture. Wright comments more generally that people want their products to last longer and to be able to do multiple things with them, something that has been recognised in children's behaviour towards products by academics. For Wright, in The Sims players have always been more creative and done more with the game than the creators could ever have imagined (Wiles, 2008). 'They become in their minds, the primary authors of their experience' (Wiles, 2008, p. 41).

The advances of computer technology have made its way into children's toys themselves. Allen (2004) describes smart toys as being those with electronics that incorporate elements of computer power as well as being able to interact with the person playing with it. An example given of this in its simplest form is Tamagotchi. These toys enabled the users to interact with their toys and receive feedback.

The technology itself is smart and clever and perhaps because of this parents and designers feel that this could impact on the development of the child. However clever these toys appear their robotic appearance neglects design for haptic development according to Allen (2004). Haptic is the psychology behind the sense to touch. In the context of using systems Allen presents the senses that are important to children design. The senses defined are the touch sense, responsive to the physical sensitivity of 'heat, pressure, vibration, slip, and pain' (Allen, 2004, p.181). Kinaesthesia, the sense connected to muscles, tendons, and joints that tell the brain judgements of weight size and shape. Finally, Cognitive process which analyses touch and kinaesthesia combined. It is this theory and the understanding of child psychology that Allen believes should help designers to create better and more appropriate toys (Allen, 2004). This is something that will be questioned and analysed in an interview with a senior toy designer.

Few investigations have been conducted which look into children interaction with technology advanced toys. One study conducted by a designer and group of university researchers (Goldstein et al., 2004) investigated play between children and technology enhanced talking rescue hero dolls against basic non interactive dolls. The study also investigated solitary play against group play with the action dolls to investigate any differences in play themes. The dolls used for the experiment were Fisher Price action dolls, talking and non-talking versions. Parents were also given a questionnaire to assess the background to children's play. The following result was of interest to the study of this investigation. In group scenarios, children played significantly longer with the toys. The quality of play was better and the child used a more extensive use of their imagination and creation of scenarios with the toys and objects around it. This, in the study, turned out to be the best external factor during play. Few differences were observed between play with the electronic talking dolls and the non-talking dolls. Children were just as imaginative in play with both dolls (Bergin Toys, 2017; Goldstein et al., 2004).

This proves that technology should not be the sole selling point of the product. The designer has added the additional feature of recorded speech within the doll, but it failed to improve the playtime of the children studied.

The effect of more advanced technology in toys is investigated by Plowman (Goldstein et al., 2004). One such toy used in the investigation was the Arthur bear, a character based on a children's television programme. The bear was computerised and designed to be connected to the computer to aid learning. The accompanying CD ROM promoted this and was also an extension of the bear's vocabulary. The marketing on the packaging suggests a great deal, expanding the child's imagination and stimulating their mental, physical, and social development. This claim is backed up by the company via a developmental psychologist. This product is clearly parent-orientated. However, in this case the Arthur toy did not get the child's attention which was lost once the software had been introduced. The technology quickly reached its full potential, this then made the vocabulary spoken by the toy seem irritating and slow. Plowman found that the educational value of these toys was no less than that of a simple soft toy. The idea behind a talking toy was that it would aid social interaction and speech development as well as being a source of information; however, Plowman found its limited response and lack of voice recognition, which would have enabled real interaction became so monotonous it was eventually turned off by the child. It appeared that children's expectations of what a toy should be were improving considerably (Goldstein et al., 2004).

2. Studies of the ways in which Designers have Designed for Children

Catherine Fishel, an editor specialising in design composed her own book regarding designing for children and invited various designers for their input. Fishel believes design informs whilst respecting the child's intelligence and goes beyond that of education in a traditional sense into helping children assess where they fit in the larger world. Great design is not cute because children strive to act older than they are and it must not work purely on the designer's experiences of children they know or come into contact with (Fishel, 2001).

These points do not agree with all cultures though, in Japan for instance, "cute" is popular amongst children. Products

are designed to be cute such as the Hello Kitty brand and these products are loved by adults and children alike. It could be called therefore a cross generational product line. The culture of cute in Japan is called 'Kawaii'. Sannio is a prominent company who creates products for the brand Hello Kitty. This is incredibly popular with Japanese women and girls. Goldstein refers to Masubuchi (1994) who defined seven fundamentals of Kawaii: Small, naive, youthful, dependent, round, pastel coloured, and featuring animal qualities. As Hello Kitty is a long established brand it is suggested that for nostalgia reasons Kawaii products like Hello Kitty remain popular through to the adult market (Goldstein et al., 2004).

Parham Santana was responsible for reimaging Mattel's Barbie brand, to do this they had to have a good understanding of what the consumers (parents and children) liked about the $1.6 billion product line and what they could do to further its success. The ways in which they found design opportunities for children was to talk to the parents in focus groups. It was from this they acquired knowledge by talking to the parent with their packaging and the product. Focus groups enabled the designers to see that whilst the Barbie pink was a hit with the children it was less so with the parents, instead of listening solely to the children the designers decided to compromise for the parents and tone down the amount of pink with complimentary colours. The brand was now appealing to the parents. Santan, designer on the project felt that by listening to the consumers they understood the children were a lot smarter than some designers give credit for. Marchi and John, designers on the project tell Fishel that they felt the emotional attachment to the brand was fundamentally important. They are products that allow the child to pretend to live as a grown up (Fishel, 2001).

Mattel's ex-senior designer felt the Barbie dolls did not speak to all girls and embarked on a new venture creating the 'Get Real Girl' - a rival to Barbie that embodied the individuality of the girl. It was through talking to her friends the designer found inspiration and a gap in the market. Her friends had all been sport driven as children and they continued to be so in their adult years. What they did as children had a strong impact on their lives and adults. Chavez the creator of the Get Real Doll noticed that existing dolls did not represent all girls. They did not really come from different cultures or lifestyles. Even though she was met with resistance in the industry she continued with her idea and created the dolls. The designer's inspiration from her now, adult friends presented the designer with an opportunity and she pursued the product line because of this (Fishel, 2001).

Creating a new Sonic toy for a children's meal programme, Swearinger the art director for C3 designers had to study the aspirations of children closely as this was a free toy and its success was purely determined by the child because of this. To him the Sonic toys were meant to be aspirational because children always want to simulate an older kid's lifestyle. As Swearinger says, for Sonic they design for 3-8 year olds, but design only for the 8 year old because younger kids always want to be like their older group members. Rynolds the creative director, talks to Fishel about the failure of design in the area. Involving and empowering the child gives them a sense of ownership. Children want to feel involved in everything going on around them, to feel empowered by a product and to feel a sense of ownership. Even though the sonic meal toy was cheap it was important to the designer that the toy was of a quality design because unlike perhaps adults, children will not accept poor design, even if it is free (Fishel, 2001).

One of the most successful toys created by Sony is Aibo. Aibo is an example of where clever technology has been used to create a smart toy. Aibo is a robotic dog that simulates as near as possible the movement, actions, and emotions of a real dog. The emotional feedback that previous electronic pets gave such as the Tamagotchi had been the driving force for creating a product that was a lot more realistic. The designers were predominantly interested in the emotional attachment between the product and the user for Aibo to be a success. For the creators of Aibo, this was the starting point, but the product developed further through a series of prototypes which allowed the designers to tweak the design creating as close as possible, a replica of a real dog. The technology was inspirational it would seem to the designer. In order to create this toy designers studied pets, they chose to design something that they

knew children loved, but that parents are resistant to buy. This was the perfect combination for these two consumers. There was no attempt to make the robot look more like a soft and cuddly animal, the designers relied on the toys functions to win the heart of the consumer. Aibo has even developed, so that it includes a camera that can take your photo (Gringer, 2001). Its almost like they gave the robot a memory to aid in this emotional attachment between toy and consumer. Aibo is an example of a cross generational toy.

MacPherson (2000) reports on a mixture of engineers, scientists, and university lectures at the University of Maryland in America who involved children in the design process when coming up with new concepts. Together they created highly stimulating technology empowered toys. These toys have include soft toy robots that are able to simulate emotions and read the stories children have created, going against the limited speech pre-programmed toys that the talking Arthur had. According to MacPherson the children were not afraid of failure and that pushed the ideas of adults and encouraged more creative ideas to be developed. The toys that have been developed because of this project allow children to take control and be the master of the toy instead of succumbing to the limitations the designer gave the design (MacPherson, 2000).

Tveskov, a designer at Lego, began his career when he was 17 years old, not far from his own childhood. In his career Tveskov was given briefs born around titles and restricted by a budget of Lego bricks which all had their individual prices. The designers at Lego assessed the suitability of models they created through parent focus groups. The issues of suitability of the suggested product models were raised with parents rather than the companies seeking the advice of the children. They also were aware through research with their market that as they developed creatively as designers and proceeded to create new complex designs it had to be suitable for a larger age range than that stated on the packaging (Johnson, 2008). It would seem that the inspiration for new Lego models came from the designers' own childhood as well as an awareness of the child's play with children of varying ages who will all want to accomplish the same Lego models.

Another major player in the toy company league is Hasbro, an online interview with Bradley, a freelance designer who worked full time for Hasbro on their Transformer lines in February of this year provided insight into the methods employed by a successful toy company. Bradley's opinion is that toy designing was supposed to be fun and his interest in Hasbro grew from his love of their boy's action products. His fondness stemmed from childhood favourites Mason and his love of dinosaurs as a 5 year old which gave him great enthusiasm and inspiration when working on a Jurassic Park line of toys (Transformer Toys, 2012).

3. Conclusion of Literature

From this literature the subject 'Designing for children and the influence designers have on child development' has been studied in a broad but insightful sense. The designer plays a large role as toys can provide or take so much from the childs play. Play is essentially a key method of developing the childs key skills (Kline, Dyer-Withford, and Peuter, 2006).

Opportunities can be found by simply reading closely on the subject area or by conducting investigations. The designer can do this through focus groups as was evident with Mattel and Lego or they can work with researchers and academics who hold an extensive wealth of knowledge in the subject area as is evident in the development of the play and soft range. Designers can work with children themselves whose fearless attitude and wild imagination can open up that of a designers. A holistic approach working with all people involved in the area can provide the success of a more appropriate product.

Buxton (2007) allowed insight into the most recent developments of research into designing for children and how this research has been used to create new and more challenging products. We should be challenging children, providing them with a canvas of colours and products which have a multitude of uses and functions. That way the child is excited by the product and will do far more with it.

Games simulate life. This is true from both traditional toys and computer games. A key theme is that children are aspirational, which is an opportunity for the designer to engage the child in a form of creative and logical play. It

was found that designers do not always create toys that are the result of research into child development. Smart toys sell themselves on their technology and are an example of a toy where their title suggests a positive influence on the child. However, this is an area that has not been fully investigated. The research that is available however questions this as the toys neglect the crucial development of haptic skills (Allen, 2004) which is evident is toys such as Aibo. It is these smart toys that are aimed at the parent consumer. Limitations of such technology in toys can act as barriers, actually hindering the imagination and creativity of the child. Toys should present opportunities like the play and soft range. Emotional feedback can perhaps, grow the child's imagination and feed their desire to believe it is really alive and perhaps this is what Aibo can promote.

It would seem from the research that the complexities of Aibo would appeal to the adult as it was this that excited the designers when creating it. Adults may then want to utilise the technology and nurture Aibo, but many children would find the limitations of it and seek to imagine more. This perhaps best describes how children really interact with products. Children will pick up a toy or any product and do something unexpected with it, use their imagination to create a world where the product becomes, does or inhabits something beyond the imagination of the adult. It is through this that designers can perhaps neglect academic research and underestimate the power of simple, classic toys. A theme throughout the research was that the best external factor of all the toys and products was their ability to provoke social interaction (Bergin Toys, 2017; Goldstein et al., 2004).

4. Research Design and Methods

Vivid was recognized as the UK's number 1 independent toy and gift product developer (Vivid Imaginations, 2017). Vivid is an international company that develops products for children and teenagers. The company has won many prestigious awards for toy design, including two Toy of the Year BATR awards and Toy Licensee of the Year by LIMA in 2003.

First the author researched for the top 12 predicted toys for Christmas 2011 Vivid Imaginations was noted as producing a number of toys on the list. Such toys included the Golden Balls Board Game, a board game based on the television quiz show of the same name and Roary the Racing Car (BBC, 2007). Due to their success in the market the company were contacted for further information. An interview was then conducted at the Vivid Imaginations offices with one of their senior designers.

After research that showed the designers childhood had influenced their abilities as a designer, and also noting that the emulation of new products can come from a retrospective view, (Transformer Toys, 2012) a questionnaire was conducted to investigate the value of this perspective further. The author met with Collip a senior designer at leading toy designers Vivid Imaginations at their offices in Guildford to discuss the process the company takes to create a new toy and to answer the questions this study seeks to answer.

The following objectives, structure, and research questions were set up for the research:

4.1 Objectives

- To find out the ways in which toy designers find design opportunities for children.
- To find out who or what becomes the inspiration for a toy designer.
- To assess the issues that come with designing for children and how this influences the outcome of the product itself.
- To find out if designers use research into child development to improve the performance of their products.
- To assess how toys that designers made over 10 years ago have affected the lifestyles of the adults these children became.

4.2 Questionnaire I

Before the interview, Collip was sent an email with the subject of the study and a list of five key questions. These questions were the following:

- How do toy designers find design problems/opportunities for children?
- Do designers aim to design for the parent or the child?
- What inspires a new product?

- What are the issues designing for children?
- Do designers aim to contribute to specific areas of the child's development?

The aim of the interview was not only to find the answers to these questions, but also to evaluate the toy designer's environment and gain more insight into the subject area, previously not considered.

4.3 Questionnaire II

The inspiration for the questionnaire derived from the literature review, where it was noted that the development of the Get Real Girl Doll came from discussion with the designer's friends reflecting on their childhood and relating it to their adult lifestyles (Fishel, 2001). Therefore, it was of interest to this study to assess the retrospective view of toys to evaluate the effectiveness of new ones.

A three part questionnaire was given to 28 people aged 18-25 years old. They were asked to discuss and reflect on their childhood activities and toys. This young adult age group was chosen due to their close proximity to their own childhoods and therefore a better recollection of it. Their childhood would also have been a time when toys began to feature more technology such as the Tamagotchi electronic pet. The aim of the investigation was to study the ways in which childhood toys and play can influence adulthood.

- What did you like to do in your free time when you were a child and do you still do any of these things today? Respondents were guided into this question by being told that their answer could be literal or figurative. For example, if they participated in very creative activities as a child, did this lead to a more creative vocation as an adult?
- What were your favourite toy/toys as a child and what was it about this toy that you liked so much?
- What did you feel was missing from toys in your childhood?

5. Results

A summary has been made of the themes derived from the questionnaires:

- It was noticed that among all the toys talked about in the answers Lego was the most discussed, mentioned by 17 respondents.
- 16 people mentioned Lego as being their favourite toy. One respondent viewed Lego negatively.
- Sport was played by 20 respondents and out of this 11 continued to play sport in their early adulthood.
- 9 respondents enjoyed the technology in toys however, some were less enthusiastic and saw technology as a drawback, 13 wished their toys were simpler to allow their imagination to take control.
- 17 respondents childhood play showed a transition into the lifestyle they had in their early adulthood.
- 5 respondents created toys out of the objects around them.

  (i) Scalextric was played by 3 respondents.

  (ii) 5 discussed their imagination as if a toy.

  (iii) Respondents wished for the following things:

  - More computer games.
  - More imagination in the design of toys.
  - More intellectual toys.
  - Cheap toys to function on a par with expensive toys.
  - For toys not to take over the play experience.
  - More realism.
  - For 'interactive toys' to have more responses.
  - Girls toys that didn't outgrow them too quickly.
  - Durable toys.
  - Toys that were less driven by media.
  - Fully working miniature versions of adult products.

6. Discussion

The questionnaire was not constrained. It was anonymous and therefore the responses were more fruitful and natural. Their answers were therefore valid and not influenced by the answers of others or guarded by their inhibitions to talk about themselves. Some respondents wished for more computer games in their childhood and indeed, computer games have flourished in the market.

Children are now subject to digital play. Where once children played socially through traditional games and outdoor play equipment children are now more subject to

social networking through online gaming (Kline, Dyer-Witherford, and Peuter, 2006). The most common of which is the introduction of online gaming from the game console. Play station 3 allows users via their televisions to play against each other from all over the world, thus creating a new way of socially interacting from an otherwise solitary toy.

A select number of respondents wished their toys to be smarter and indeed smart toys are a popular item. It could be said that children want to be stimulated and designers have used their imagination to utilise technology for creating toys with more realism, something that many respondents also wished from their toys. They may not have meant this quite so literally. Some wished for realism based on aspiration themes: a desire to own things that simulate an adult's lifestyle and therefore gain more satisfaction through pretend play.

The reasons behind some respondents' dissatisfaction with their toys was due to their failure to deliver. One example would be with Scalextric where a respondent complained "Scalextric [cars] always used to fall of the track, which was annoying" Respondent 2, Male. This is an example where play, really is just that. Children do not always want to learn how to use tricky equipment, they want to feel empowered by their toys and they want to be able to work toys out on their own or with others, and to have fun, easily.

Respondents did not always want the toy to take over play. "The toys that tried to do a lot of the playing for you were the disappointing ones." Respondent 4, Male. Children like to feel empowered and see the results of their play. This relates back to research that has produced negative conclusions about smart toys. The Arthur CD ROM toy appeared to take over play and because of this it was boring and quickly discarded (Goldstein et al., 2004). Children want to take control of their play experience and use their imagination to expand the realms of play. This also relates to the ways in which respondents wished for better interactive toys, one respondent referred to a simple pull cord on a doll that triggered a recorded voice, children want to learn.

One female respondent wished for toys that didn't outgrow her so quickly, it is known that girls mature at a faster rate than boys and this could relate to the fact that girls were the most expensive consumers to buy for in Christmas 2007 (BBC, 2007). If parents were to purchase the top 12 toys and games for girls it would cost them £507.64. This would be almost £100 pounds more than that of the top 12 toys for boys which totals in at £409.56 (Smithers, 2007).

It was evident that childhood reflected adulthood. "I was always making things and drawing as a child and today I am studying product design and intending on getting a design job afterwards" Respondent 4, Male. "I enjoyed being creative with parents. Making things from nothing. 1 am teaching design now." Respondent 24, Female.

"I always hated how screens and windows on toys weren't see through and had [printed] stickers over them to look like they were" Respondent 5, Male. Children do not like to feel cheated, they have incredible imaginations. If the designer tries to 'fake' something, it can take away the satisfaction with the toy. Lego is an example of an honest toy whose simplicity is key to its success. "I always liked Lego and Playmobile. 1 liked them because there was so much you could do with them; the possibilities were endless." Respondent 6, Male. It is exciting for the child to sit down and not know what new world they will come up with next.

One respondent appeared unaware of her own imaginations influence on the enjoyment of the toy. "Trolls! You could collect all the different types and play games with them. They had their own personality." Respondent 20, Female. The Trolls of course had no personality, they were made of plastic. It was the respondent that gave them that personality.

"Most toys are derived from films or have some sort of mass publicity behind them, they aren't creative enough to sell themselves." Respondent 11, Male. Toys need to stand-alone as being great; they cannot ride upon media success.

Girls want dolls that remind them of themselves, so that they can find their place in society. "I was disappointed that it was had find a brunette doll". This was evident in the quote from Respondent 27, Female.

"Always have loved TV and anything associated like video games…I was always the case study example in class as the most viewing hours". Respondent 28, Female. Did hours watching television for this one respondent, hinder the

child's imagination and become the reasons behind such disappointment with toys? "The fixed expressions on dolls irritated me, how were they supposed to have conversations when their mouths didn't work how cool would it have been to see out of their eyes. That action man camera toy was a great idea but not aimed at me. 1 liked realism. I just wanted everything in the real world to be scaled down to be a toy. Why didn't my toy Hoover actually vacuum?"

"Lego - sometimes you just didn't have the right brick for what you wanted to make.. .how cool would it have been if you could order your own brick!" Respondent 21, Female. Children like to be the creators. The designer only need give them the tools.

Conclusion

Through the course of this study, it can be concluded that the designer plays a crucial role in creating products for children that influence their development. Is it more important for the designer to appeal to parents with toy design over that of the child? Whilst this is a complex area as both feed into one another's decisions it would seem from this study that in literary research and empirical this was deemed true. It is evident that the designer is aware of their role to create not only a product that appears fun to play with and therefore catch the eye of the child, but also to claim educational benefits to persuade the adults that it is worth the money. The development of this in the future will be of interest. Halifax report a 600% increase in pocket money since 1987, well above the rise of inflation (HBOS, 2012). If this gain of money increases the child will gain consumer power and the educational description on the packaging will not be enough to captivate them.

The research demonstrates that as we grow into adults our childhood toys can have an influence on the skills we take on into adulthood. By prompting people to reflect on "their childhood toys a stronger and realistic picture can be built up of the toy's problems. It can be seen that the simpler the toys the more excitable and in-depth response from the respondent. The overwhelming response of Lego bricks was mainly driven by the childhood desire to be the master of their own play. The toy was not to dictate them, but they had a desire to be the creators of anything they wanted, and were not so concerned with making the standard suggested toy. It is therefore appropriate to see what it is Lego, the most talked about toy, have to say on their website.

Lego state on their website that "The purpose and vision of the LEGO Group is to inspire children to explore and challenge their own creative potential" (Lego, 2012). The toys aim to be fun and develop creative and essential skills to develop the child's mind through play. At Lego they try to embody the energy and imagination of a child when creating products. And their focus is primarily on the child rather than the parent (Lego, 2012).

Toys in some senses have become too complicated. They do not allow the child to be free. The simplest games are the ones that will last forever. That is why Christmas 2007 saw Lego as one of the most popular toys sold in Hamley's (Hall, 2007).

The study has proven that it is vital for designers to accumulate the knowledge about child development to ensure than any other advancements in toy design are taking into a positive and rewarding direction. This not only pays tribute to the enjoyment and fulfilment of child play, but also as the questionnaire results suggest a satisfaction in the retrospective view in their adult life.

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